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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,837	07/25/2003	Takeshi Iwasaki	008312-0305236	9253

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EXAMINER

- BERNATZ, KEVIN M

ART UNIT PAPER NUMBER

1773

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/626,837

Applicant(s)

IWASAKI ET AL.

Examiner

Kevin M Bernatz

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/25/03 + 11/8/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1 – 5, 8, 10 – 14, 17 and 18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 - 15 of copending Application No. 10/228,952 to Sakawaki et al. (U.S. Patent App. No. 2003/0082407 A1). This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Regarding claim 1, Sakawaki et al. disclose a perpendicular magnetic recording medium comprising a nonmagnetic substrate, a first perpendicular magnetic recording layer formed on the nonmagnetic substrate, having an easy axis of magnetization in a vertical direction and a second perpendicular magnetic recording layer formed on the first perpendicular magnetic recording layer, having an easy axis of magnetization in the vertical direction, and mainly containing an alloy containing a rare earth element and a

transition metal (*claims 1, 4, 6, 7 and 12*). While Sakawaki et al. fails to explicitly disclose whether the alloy is amorphous or crystalline, the Examiner takes the position that the disclosed compositions in claims 4 and 12 of Sakawaki et al. would inherently produce a crystalline alloy given that it is a CoCrPt alloy magnetic layer, which are known hcp structured alloys.

Regarding claims 2 and 3, Sakawaki et al. disclose additional layers meeting applicants' claimed structural limitations (*claims 1 and 8*). The Examiner takes official notice that forming lubricating layers on a protective layer is known in the art for improving the tribological performance of the medium.

Regarding claims 4, 5, 8 and 10 - 14, Sakawaki et al. disclose alloys meeting applicants' claimed compositions (*claims 4, 5 and 12*).

Regarding claim 17, Sakawaki et al. disclose an orientation-regulating layer meeting applicants' claimed limitations on "at least one nonmagnetic undercoating between the nonmagnetic substrate and first perpendicular magnetic recording layer" (*claim 1*).

Regarding claim 18, the claimed apparatus limitations "a mechanism which supports and rotates the perpendicular magnetic recording medium", a "magnetic head having an element to record information on the perpendicular magnetic recording medium", "an element to reproduce recorded information", and "a carriage assembly which supports the magnetic head to be movable with respect to the perpendicular recording medium" are all nominal apparatus limitations present in a standard magnetic recording/reproducing apparatus in order for a recording/reproducing apparatus to

function as designed. Since Sakawaki et al. disclose a magnetic recording and reproducing apparatus for use with the claimed recording medium (*claim 15*), the Examiner deems that one of ordinary skill in the art would readily recognize that the presently claimed limitations are not patentably distinct from claim 15 of Sakawaki et al. since all magnetic recording and reproducing apparatus must necessarily possess “a mechanism which supports and rotates the perpendicular magnetic recording medium”, a “magnetic head having an element to record information on the perpendicular magnetic recording medium”, “an element to reproduce recorded information”, and “a carriage assembly which supports the magnetic head to be movable with respect to the perpendicular recording medium”.

Claim Objections

3. Claim 3 is objected to because of the following informalities: “on the protective layer” should be “on a protective layer” since there is no antecedent basis for “the” protective layer since claim 1 does not recite a protective layer. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 – 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the language “containing cobalt in a larger amount”, but does not define what the amount is larger than. For purposes of evaluating the prior art, the Examiner has interpreted this limitation as merely requiring that the alloy contains cobalt.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 – 14, 17 and 18 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Sakawaki et al. ('407 A1) – and –

Claims 1 – 14, 17 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Sakawaki et al. (JP 2003-67910 A). See U.S. Patent App. No. '407 A1, which is the U.S. equivalent of JP '910 A.

Regarding claim 1, Sakawaki et al. disclose a perpendicular magnetic recording medium (*Paragraph 0018*) comprising a nonmagnetic substrate (*Figure 1, element 1*), a first perpendicular magnetic recording layer formed on the nonmagnetic substrate, having an easy axis of magnetization in a vertical direction and a second perpendicular magnetic recording layer formed on the first perpendicular magnetic recording layer, having an easy axis of magnetization in the vertical direction (*Figure 1, element 5; Paragraphs 0095 – 0097; and Table 3*), and mainly containing a crystalline alloy (*Paragraph 0089 – 0093*), and the crystalline alloy contains a rare earth element and a transition metal (*Paragraphs 0088, 0094, 0095 and examples*).

Regarding claims 2, 3 and 17, Sakawaki et al. disclose additional layers meeting applicants' claimed structural limitations (*Paragraph 0065*).

Regarding claims 4, 5, 8 and 10 - 14, Sakawaki et al. disclose alloys meeting applicants' claimed compositions (*Paragraphs 0088 – 0095 and examples*).

Regarding claims 6 and 7, Sakawaki et al. disclose magnetic layer thickness values meeting applicants' claimed limitations (*Paragraphs 0095 – 0098 and examples*).

Regarding claim 9, Sakawaki et al. disclose first magnetic layers containing oxygen (*Paragraph 0096*).

Regarding claim 18, Sakawaki et al. disclose the nominal apparatus limitations meeting applicants' claimed limitations (*Figure 5*). Furthermore, the Examiner deems that one of ordinary skill in the art would readily recognize that the claimed apparatus elements are nominal apparatus elements since all magnetic recording and reproducing apparatus must necessarily possess "a mechanism which supports and rotates the perpendicular magnetic recording medium", a "magnetic head having an element to record information on the perpendicular magnetic recording medium", "an element to reproduce recorded information", and "a carriage assembly which supports the magnetic head to be movable with respect to the perpendicular recording medium".

8. Claims 1 – 10 and 14 – 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Honda et al. (U.S. Patent No. 5,851,643).

Regarding claim 1, Honda et al. disclose a perpendicular magnetic recording medium (*col. 17, lines 21 - 25*) comprising a nonmagnetic substrate (*Figure 1d, element 1*), a first perpendicular magnetic recording layer formed on the nonmagnetic substrate, having an easy axis of magnetization in a vertical direction and a second perpendicular magnetic recording layer formed on the first perpendicular magnetic recording layer, having an easy axis of magnetization in the vertical direction (*Figure 1d, elements 3 and 4*), and mainly containing a crystalline alloy (*col. 18, lines 38 – 61 and Figure 7b*), and the crystalline alloy contains a rare earth element and a transition metal (*col. 17, lines 45 - 53*).

Regarding claims 2, 3 and 17, Honda et al. disclose additional layers meeting applicants' claimed structural limitations (*Figures, elements 2, 6, 22 and 49; col. 23, lines 53 – 56; and col. 24, lines 31 - 32*).

Regarding claims 4, 5, 8, 10 and 14, Honda et al. disclose alloys meeting applicants' claimed compositions (*col. 17, lines 45 – 53; col. 22, lines 44 – 49; and col. 26, lines 50 – 57*).

Regarding claims 6 and 7, Honda et al. disclose magnetic layer thickness values meeting applicants' claimed limitations (*col. 15, lines 31 – 37; col. 22, lines 4 – 21; and examples*).

Regarding claim 9, Honda et al. disclose first magnetic layers containing oxygen (*col. 22, lines 44 – 49 and col. 23, lines 15 - 25*).

Regarding claims 15 and 16, Honda et al. disclose multilayered perpendicular recording media meeting applicants' claimed structural limitations (*Figures 1a, 10, 11 and col. 22, lines 2 – 21*).

Regarding claim 18, Honda et al. disclose the nominal apparatus limitations meeting applicants' claimed limitations (*Figures 16a and 16b and col. 24, lines 44 - 58*). Furthermore, the Examiner deems that one of ordinary skill in the art would readily recognize that the claimed apparatus elements are nominal apparatus elements since all magnetic recording and reproducing apparatus must necessarily possess "a mechanism which supports and rotates the perpendicular magnetic recording medium", a "magnetic head having an element to record information on the perpendicular magnetic recording medium", "an element to reproduce recorded information", and "a

carriage assembly which supports the magnetic head to be movable with respect to the perpendicular recording medium".

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 11 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. as applied above, and further in view of Nippon Digital (JP 02-103715 A). See provided Derwent Abstract Translation of JP '715 A.

Honda et al. is relied upon as described above.

Regarding claims 11 – 13, Honda et al. fail to disclose a CoCr magnetic alloy comprising a percentage of RE meeting applicants' claimed composition limitations.

However, JP '715 A teach that using a CoCr alloy comprising an amount of rare earth elements meeting applicants' claimed composition limitations results in a perpendicular recording layer possessing fine and regular cross section structure which allows achievement of high recording densities (*Derwent Abstract*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Honda et al. to use a CoCr alloy comprising a composition meeting applicants' claimed limitations as taught by JP '715 A

in order to form a perpendicular recording layer possessing fine and regular cross section structure which allows achievement of high recording densities.

Conclusion

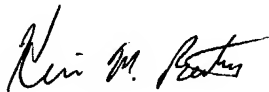
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yahisa et al. (U.S. Patent No. 5,236,791) teach a perpendicular recording medium comprising a Co-based magnetic alloy including Gd meeting applicants' claimed compositional limitations wherein the alloy can be crystalline or amorphous (*col. 10, lines 57 - 64*). Sakai et al. (U.S. Patent App. No. 2002/0018917 A1) teach a multilayered perpendicular recording medium meeting applicants' claimed structural and compositional limitations, but utilizes an amorphous transition metal-rare earth magnetic alloy instead of a crystalline one (*entire disclosure*), though see Yahisa et al. regarding the equivalence of crystalline versus amorphous transition metal-rare earth magnetic alloys for use in perpendicular recording media. JP 2002-025031 A, JP 05-054358 A, and JP 2001-076332 A all disclose the use of amorphous Co-rare earth magnetic layers for perpendicular recording (see Derwent or JPO Abstracts).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin M. Bernatz, PhD.
Primary Examiner

December 9, 2004